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## No. XII.

## FIRE ESCAPE.

*The* SILVER MEDAL *was voted to Mr. A.* WIVELL, *20 Cardington Street, Hampstead Road, for his Fire Escape; a Model of which has been placed in the Society's Repository.*

THE machine consists of a compound ladder placed on a pair of high wheels, and having a light frame projecting behind, by means of which it may be steered. Four men are sufficient to run it along the street with considerable rapidity, to turn it in any direction, and to place it in a position ready to act.

The lower part of the machine is a ladder from thirty to thirty-five feet long, and capable of being placed at various angles with the horizon, in order to adapt itself to the particular circumstances of the house to which it is intended to be applied. Beneath the steps of the ladder is extended a trough of sacking, down which persons, who from fear or infirmity cannot come down the ladder, may slide, either alone, or by the assistance of one of the men attached to the fire-escape. The rate of descent is easily regulated by the person pressing with his knees against the sides of the trough ; a very moderate degree of pressure being sufficient to stop the descent altogether. Not far from the top of the ladder project two levers, to one end of each of which is attached a rope, and to the other two ends are fastened the bottom of the two spars of the upper ladder, which is from eighteen to twenty-one feet in length. By pulling, therefore, at the ropes, it may be raised to its working position. The four or five lower rounds of this ladder are framed together so as to form a light door, which being thrown back on its hinges, will not obstruct the free passage of persons up or down the main ladder while the upper one also is in use. Two fire-guards of wire-gauze form part of the apparatus, one of which is movable on the main ladder to protect any part of it, while the other may be hung before any window from which flames are issuing in a direction likely to obstruct the working of the machine.

Several machines of full size have been made by Mr. Wivell for "The Society for the Protection of Life from Fire," and for some of the London parishes; and their perfect applicability to the purpose intended has been demonstrated on several occasions.

### *Explanation of the Plate.*

*a a*, fig. 1, is a ladder long enough to reach the under part of a second-floor window. This ladder is made without the six lower spokes, it being framed in with the side-ladders *b b*, which supply their place: these are mounted on the large light wheels *e e* by means of the framing *d d* and springs *c c*. The machine is conveyed from place to place, in nearly the position here shewn, to facilitate which, two small rollers *f f* and the frame *g g* are added. This latter serves as a lever or handle by which two or three men can push it forwards: it is jointed to the ladders *b b*, so as to turn up flat against them; and when in this position is no obstruction to the use of the machine, it being framed so as exactly to correspond with the parts against which it is applied (see fig. 4): it is kept open, as here shewn, by two hook-rods *h h*. For the purpose of reaching a third floor, without interfering with the communication to the second, at *i i* is jointed a second ladder *j*, the lower part of which, *k*, opens like a door; thus giving access to either of the floors. When travelling, this ladder is in a position the reverse of that shewn in the plate, being folded down on the middle part of the main ladder by the joint *i i;* and when needed, it is pulled up by the cords *l l*, attached to the levers *m m*, and secured by cleats at *n n*, on the ladders *b b*. These ropes are represented as hanging loose merely to shew them. An iron frame *o*, shewn separate in fig. 5, which is a top view, is fitted to the top of the ladder *a*, having rollers *p p* to ease the ascent of the ladder up the wall. This frame keeps the ladder so far from the wall as to allow a person from the window to get into the canvass trough *q q*, and slide down to the bottom, where a soft cushion *r* is placed to receive him. He then comes out, or is taken out, immediately, to make way for another person sliding down. This trough is fixed at top to the frame *o*, and is nailed along the under inside of the ladder *a*. In case of fire issuing from the lower part of the house, two guards are provided to protect the canvass trough, either or both of which may be used. The guard *s* is made of wire-gauze, and is bent round under the trough and edged with iron: it slides on two metal wire ropes *t*, one of which is shewn in fig. 2: they are fixed to the top and bottom of the ladder. This guard is generally pulled up to the top, or to the place where the heat would most affect the canvass trough, by means of a rope fastened at *u*, fig. 2, from whence it passes from the guard and over a pulley *z*, seen in fig. 5. It then descends on the outside of the guard, as shewn at *u* and *w*, along the under side of the canvass trough, and is conducted by two pulleys to the frame *g*, on which cleats are placed to make the rope fast. To prevent the guard *s* from swagging, the ladder is furnished with hooks, as at *x*, fig. 1, on which the rope *t t* is placed as soon as the guard has passed them. The other guard *y y*, fig. 1, hangs from another pulley, as *z*, fig. 5, in the iron frame *o*, with two cords from its bottom to guide it: it is pulled up to hang before any under window, and thus prevent the flames from issuing out. It is made of four frames of wire-gauze, jointed together so as to fold up: the curved guard is let down to the bottom of the trough, and the other is folded up in the space *c c*, fig. 4, between the wheels when travelling, there being an open wire-work bottom for it to lie on. At the bottom of each side-ladder *b b* is a socket for an iron rod to slide in. One of these rods is shewn separate in fig. 3: it has a pin tied to it, and when the fire-escape is in its place, these rods are let down to touch the ground, and are then pinned in their place, there being a row of holes over each for that purpose: they keep the whole steady. Fig. 4 is a section through the top of the side-ladders *b b*, to shew the wood and iron framing. To the axle are attached four ropes with wood blocks, to lie fore and aft under each wheel. These blocks are put into the bucket whilst travelling, two of which are shewn in the bucket, and the other two in their place, as stopping the wheel when the machine is in use.

Fig. 5 is a top view of the frame *o*. Fig. 6 is a section through one side of the ladder; and fig. 7 is a back view of a small portion, to shew the grooves or recesses made along the back of each side of the two principal ladders *a* and *j*, in which are laid iron-wire ropes from end to end, and these are drawn very tight, so as to strengthen the ladders and secure them from breaking.

Fig. 8 is a top view, and fig. 9 a side view, in section of a single ladder-escape: it is laid on the window-sill 1, and secured to the floor by the screw 2. At 3 are placed three studs: over and under these the rope 4 passes, then through a hole in the end bar 5; and ends in a slip-noose 6, to place round the body. By holding the other end lightly in his hand, a person may let himself down very easily; or he may let any other person down, and then pull it up to let himself down.

## No. XIII.

## A RAFT.

*The Thanks of the Society were voted to Captain J.* ***Cookesley****, R.N. Rackley House, Portshead, near Bristol, for the following Communication respecting a Raft to be used in case of Shipwreck, or for other purposes.*

*Rackley House, Portshead, near Bristol,*
*June* 16, 1834.

Sir,

The tempestuous weather we experienced during the last winter was attended with so much loss of life and property by shipwreck, that it must naturally excite the attention of naval men as to the best mode of saving lives on these emergencies. The great number lost and *so few*